



Chair of biochemistry and molecular biology
Pirogov Russian National Research Medical University

Lecture 0

Introduction into Biology course

For the 1-year students of the International faculty

Anastasia Aleksandrovna Kotikova

Today's plan:

- Introduce your teacher
- Talk about our Chair
- Discuss your expectations
- Consider the curriculum
- Train to solve problems and tests
- Hometask

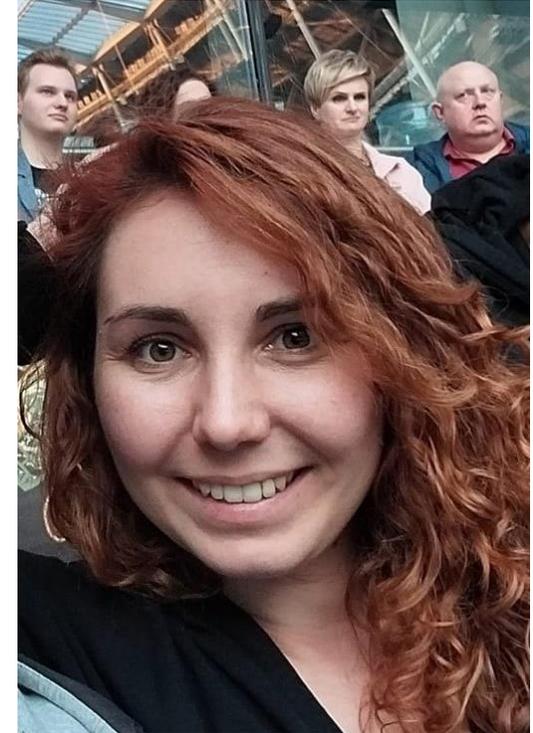
Chair of biochemistry and molecular biology



Shestopalov Alexandr V.,
Head of Chair



Borisenko Olga V.,
Head of studies



Kotikova Anastasia A.,
Your teacher

Contents of the Biology course: 8 modules + exam

- 1. Introduction to molecular biology.** 1 lecture, 3 seminars, Q
- 2. Genetic material of a cell.** 2 lectures, 3 seminars, Q
- 3. Gene expression and protein synthesis.** 2 lectures, 3 seminars, Q
- 4. Molecular biology methods.** 2 lectures, 2 seminars, Q
- Credit ---
- 5. The structure and functioning of eukaryotic cells.** 2 lectures, 3 seminars, Q
- 6. Cell cycle and sexual reproduction.** 1 lecture, 2 seminars, Q
- 7. Signal transduction.** 2 lectures, 3 seminars, Q
- 8. Cell death. Carcinogenesis basics.** 2 lectures, 3 seminars, Q
- Exam ---



Main topics in the Biology course:

Term 1: Molecular biology

1. Introduction to molecular biology.

The subject of MB, Central dogma of MB, genes and genomes

2. Genetic material of a cell.

DNA replication, packaging, and repair

3. Gene expression and protein synthesis.

Transcription, Translation, RNA and protein modification

4. Molecular biology methods.

PCR, sequencing, DNA cloning and their application

Term 2: Cell biology

5. The structure and functioning of eukaryotic cells.

Biological membranes, types of cells in human body, their organelles structure and functions

6. Cell cycle and sexual reproduction.

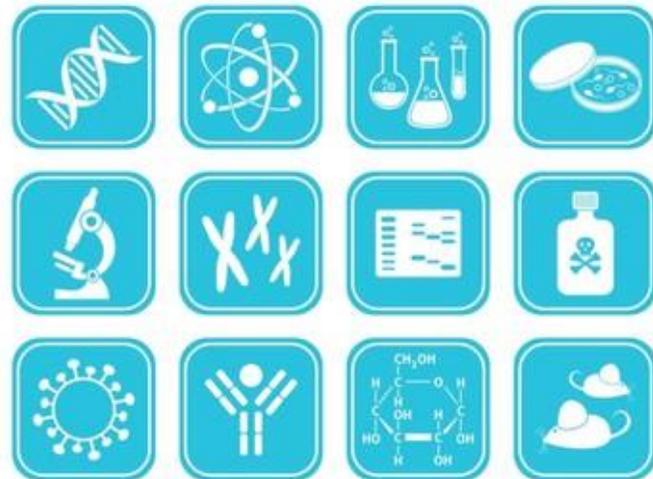
Mitosis and meiosis, gametogenesis, fertilization

7. Signal transduction.

How cells in our body communicate with each other

8. Cell death. Carcinogenesis basics.

How and why cells die or convert into malignant ones



Types of classes

Class	Online/Offline	Your Activities	Your rating
Lecture	Online or offline	Listening and writing (preparing a summary), ask questions	Presence, 1 point (≈5%) * Lecture materials are included in the control works on seminars!
Seminar	offline	Prepare for the class according to the questions, discuss them with your teacher and your mates, write a control work	Oral activity, 0-10 points (≈15%) Writing a control work, 0-10 points (≈30%)
Colloquium	offline	Repeat the material of the whole module, ask your teacher questions before the colloquium	Test, 0-20 points, <u>min 14</u> (≈10%) Oral part, 0-10 points, <u>min 7</u> (≈40%)
Credit	offline	Prepare the topics (classes and tests) to re-take, ask your questions if any	Automatic credit if rating is $\geq 70\%$ and green
Exam	offline	Oral answer to 3 questions * If rating in both terms is $\geq 90\%$, you get “excellent” mark automatically	0-20 points, <u>min 14</u> $((\text{I term rating} \times 0,6) + (\text{II term rating} \times 0,4)) \times 0,7 + \text{your exam answer} \times 0,3 = \text{your final points}$

How to prepare for a class

Lecture:

- Prepare a copy book and a writing tool (or you may use electronic devices for making notes)
- Prepare tea/coffee, a rug or whatever makes you feel comfortable
- Enjoy the lecture! Ask your teacher to repeat once again if you missed something, do not hesitate to ask questions if something is not clear

Seminar:

- Check the topic of the next seminar and the list of questions. If you do not have any, ask your teacher
- Check if the seminar topic has the corresponding lecture materials. If yes – watch the lecture or refresh the information from it
- Open the recommended book(s) at the corresponding topic, prepare a summary of the key terms
- Do the home task if any

Colloquium:

- Check the topics for the colloquium and the list of the corresponding questions. If you do not have any, ask your teacher
- Refresh the information using your summaries from the lectures, seminars, and books
- Train the on-line test
- Sleep well before the day of the colloquium

You may re-take

Control works, colloquium tests and oral parts

Your teacher will have a special day every week when you may improve your works if your mark is below 7





Ready, Steady, GO!